



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,720	08/01/2006	R. Bruce Weisman	11321-P075WOUS	4669
61060	7590	09/08/2008	EXAMINER	
WINSTEAD PC P.O. BOX 50784 DALLAS, TX 75201			KOSLOW, CAROL M	
			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			09/08/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/572,720	<b>Applicant(s)</b> WEISMAN ET AL.	
	<b>Examiner</b> C. Melissa Koslow	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/27/07, 2/1/08, 7/9/08</u> .                                | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 1793

Applicant's election without traverse of Group I in the reply filed on 9 July 2008 is acknowledged.

The amendment to the claims filed on 9 July 2008 does not comply with the requirements of 37 CFR 1.121(c) because claims 5-10 include the previous amendment markings. Only claims having the status of "currently amended" and "withdrawn-currently amended" can include markings. Amendments to the claims filed on or after July 30, 2003 must comply with 37 CFR 1.121(c) which states:

(c) *Claims*. Amendments to a claim must be made by rewriting the entire claim with all changes (e.g., additions and deletions) as indicated in this subsection, except when the claim is being canceled. Each amendment document that includes a change to an existing claim, cancellation of an existing claim or addition of a new claim, must include a complete listing of all claims ever presented, including the text of all pending and withdrawn claims, in the application. The claim listing, including the text of the claims, in the amendment document will serve to replace all prior versions of the claims, in the application. In the claim listing, the status of every claim must be indicated after its claim number by using one of the following identifiers in a parenthetical expression: (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

(1) *Claim listing*. All of the claims presented in a claim listing shall be presented in ascending numerical order. Consecutive claims having the same status of "canceled" or "not entered" may be aggregated into one statement (e.g., Claims 1-5 (canceled)). The claim listing shall commence on a separate sheet of the amendment document and the sheet(s) that contain the text of any part of the claims shall not contain any other part of the amendment.

(2) *When claim text with markings is required*. All claims being currently amended in an amendment paper shall be presented in the claim listing, indicate a status of "currently amended," and be submitted with markings to indicate the changes that have been made relative to the immediate prior version of the claims. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. Only claims having the status of "currently amended," or "withdrawn" if also being amended, shall include markings. If a withdrawn claim is currently amended, its status in the claim listing may be identified as "withdrawn—currently amended."

(3) *When claim text in clean version is required*. The text of all pending claims not being currently amended shall be presented in the claim listing in clean version, i.e., without any markings in the presentation of text. The presentation of a clean version of any claim having

Art Unit: 1793

the status of “original,” “withdrawn” or “previously presented” will constitute an assertion that it has not been changed relative to the immediate prior version, except to omit markings that may have been present in the immediate prior version of the claims of the status of “withdrawn” or “previously presented.” Any claim added by amendment must be indicated with the status of “new” and presented in clean version, *i.e.*, without any underlining.

(4) *When claim text shall not be presented; canceling a claim.*

(i) No claim text shall be presented for any claim in the claim listing with the status of “canceled” or “not entered.”

(ii) Cancellation of a claim shall be effected by an instruction to cancel a particular claim number. Identifying the status of a claim in the claim listing as “canceled” will constitute an instruction to cancel the claim.

(5) *Reinstatement of previously canceled claim.* A claim which was previously canceled may be reinstated only by adding the claim as a “new” claim with a new claim number.

The articles cited in the information disclosure statement filed 27 December 2007 and the Weisman et al article cited in the information disclosure statement of 9 July 2008 fail to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the required titles are missing or incomplete and the publication month is not given. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

PCT/US04/24057 cited in the information disclosure statement filed 27 December 2007 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because it is an application and not a published reference. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information

Art Unit: 1793

disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Applicants need to provide the publication number and date for PCT/US04/24057 in order for it to be considered.

JP 2003-26981 cited in the information disclosure statement filed 9 July 2008 and WO 02/060812 cited in the information disclosure statement filed 27 December 2007 fail to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Applicants only provided the abstract for JP 2003-26981 and thus did not provide a copy of the actual reference. The abstract has been cited on the PTO-892.

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35

Art Unit: 1793

U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed application, Application No. 60/500,394, fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application.

Provisional application 60/500,394 teaches an ink comprising single-walled carbon nanotubes, where the liquid in the ink is water, organic solvents and combinations thereof. The application also teaches an ink comprising water, a surfactant and single-walled carbon nanotubes. Thus the provisional application provides adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for the subject matter of claims 3, 5, 10, the embodiments of claims 1 and 2 where the carbon nanotubes are single walled; the embodiments of claim 7 where the liquid medium is water, organic solvents and combinations thereof and the embodiment of claim 8 where the medium is water. Thus this claimed subject matter has the effective filing date of 5 September 2003. The other embodiments of claims 1, 2, 7 and 8 and the subject matter of claims 4, 6 and 9 have the effective filing date of 2 September 2004.

The disclosure is objected to because of the following informalities:

The status of the U.S. application 10/379,273 cited on page 8 need to be updated and the publication number for PCT/US04/24507 is required. Appropriate correction is required.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The subject matter of claim 5 is not found in the specification. There is no

Art Unit: 1793

teaching in the specification that one of the additives in the ink is a polymeric material, as claimed in claim 9.

Claims 1 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 states the nanotubes are “operable for undergoing photoluminescence”. It is unclear what is meant by this phrase. It is noted that this phrase is not used in the specification. Claim 1 also refers to a predetermined range of emission wavelengths. This phrase is indefinite since this range is not defined in the specification, nor is this phrase used in the specification. It is noted that the specification teaches that the nanotubes only emit in near IR wavelengths. Finally, claim 1 states the ink is “formulated for adhesion to a substrate”. It is unclear what is meant by this phrase. It is noted that this phrase is not used in the specification. Claim 6 is indefinite as to its meaning. The subject matter of this claim is not found in the specification and thus it cannot be used to clarify what is meant by this claim. It is noted that paragraph [0041] teaches using mixture of different SWCT species, but the wording of claim 6 is so indefinite it cannot be determined if the claim is referring to the teaching of paragraph [0041].

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

Art Unit: 1793

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(a or b) as being anticipated by JP 2003-026981.

If the taught carbon nanotubes are SWNT, the rejection is based on 35 U.S.C. 102(a). If the taught carbon nanotubes are MWNT, DWNT, combinations thereof; mixtures of SWNT with at least one of MWNT and DWNT or any other type of carbon nanotube, the rejection is based on 35 U.S.C. 102(b).

This reference teaches an ink, which is printed on paper, and thus is formulated for adhesion to paper, comprising a dispersion of carbon nanotubes, which inherently are photoluminescent and emit a pre-determined wavelength when irradiated with visible light. The reference teaches the claimed ink.

Claim 1 is rejected under 35 U.S.C. 102( b) as being anticipated by U.S. patent 6,330,939.

This reference teaches an ink, which is printed on a substrate, and thus is formulated for adhesion to a substrate, comprising a dispersion of carbon nanotubes, which inherently are photoluminescent and emit a pre-determined wavelength when irradiated with visible light. The reference teaches the claimed ink.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent application publication 2002/0025490.

This reference teaches an ink comprising a dispersion of carbon nanotubes, which inherently are photoluminescent and emit a pre-determined wavelength when irradiated with visible light (col. 37-39;part (G) and col. 67, line 42-col. 69, line 60). This ink is printed on a



Art Unit: 1793

substrate and thus is formulated for adhesion to a substrate. The reference teaches the claimed ink.

Claims 1-3 and 7-10 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. patent 7,097,788.

This reference teaches a ink that is printed on a substrate and thus is formulated for adhesion to substrate, comprising a dispersion of carbon nanotubes in a mixture or binder and solvent. The ink can also contain surfactants and dyes. The carbon nanotubes can be SWNTs, DWNT or MWNTs. The taught nanotubes which inherently are photoluminescent and emit a near IR wavelengths when irradiated with visible light. The solvent can be water, organic solvents and mixtures thereof. The reference teaches the claimed ink.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5 and 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent application publication 2002/0025490 in combination with the article by O'Connell et al.

As discussed above, U.S. patent application publication 2002/0025490 teaches the claimed ink. Column 67, line 42 through column 69, line 60 and the examples teach the compositions of the inks in which the carbon nanotubes are dispersed. These inks comprise a liquid medium selected from water, organic solvents and mixtures thereof and a polymeric binder and optionally, surfactants or dyes. The published application teaches the nanotubes can be any which are Rama-active. The articles teaches SWNT with a diameter of 0.7-1.1 nm are

Art Unit: 1793

Raman-active. This one of ordinary skill in the art would have found it obvious to use SWNTs with a diameter of 0.7-1.1 nm as the carbon nanotubes in the taught ink. The references suggest the claimed ink.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/cmk/  
September 9, 2008

/C. Melissa Koslow/  
Primary Examiner  
Art Unit 1793